

25X1A
May 22, 1961

Dear Doc:

At the inception of the O program, we were informed that the Eastman Kodak Company would not supply a V/H sensor and associated IMC drive electronics as a portion of our participation. It was also stated that a V/H sensor would be supplied by Perkin-Elmer for our use, the philosophy being that this device would be a unit identical to their own and usable in our configuration.

To allow for any possible emergency situations, the Eastman Kodak breadboard was designed to be tested with a programmed intervalometer V/H device. The programmer was based on scanning through average values of V/H by a series of ten steps to cover a total of 10% expected variation. It is obvious that only 10% of the resulting photography could be expected to be optimum.

Upon recent inquiry at Perkin-Elmer, it was determined that no action had been initiated to provide the Eastman Kodak Company with a V/H device and it appeared to be dubious that such a device could now be supplied within the required time limits even if authorized.

When headquarters was informed of the Perkin-Elmer situation, a full scale investigation into the possibility of obtaining a V/H device from another source was initiated.

A trip was made to [] to obtain recommendations. As a result of this visit, [] was contacted relative to a modification of the [] Infrared Unit for initial tests and in addition the supplying of a 1.0% Solo unit for flight tests.

[] and [] were also contacted relative to their ability to supply a better than 1% accuracy device within an eight month period.

After studying the anticipated system performances and weighing technical and schedule factors, it was decided to re-visit the Perkin-Elmer facilities to more fully evaluate possible procurement status. [] had previously made the offer to supply engineering guidance if Kodak could share in supplying engineering as well as mechanical and electronic technician help for fabrication of a unit.

In reviewing the design and the status of the Perkin-Elmer unit, the following points became evident:

1. The sensor head design would have to be re-done by Kodak to relocate the positions of the lens, the grid and the photo multiplier.

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2. Fiber optics used to deliver the chopped light from the grid to the photo multiplier could be procured by Kodak from one of several suppliers without jeopardizing security.
3. The photo multiplier and power supply could be purchased through Perkin-Elmer (no changes anticipated).
4. The resolvers could be supplied to Kodak by Perkin-Elmer to protect security. Kodak would, of necessity, be required to design its own gear train coupling the resolver to the breadboard film transport.
5. The discriminator and integrator might be supplied complete by Perkin-Elmer.
6. Perkin-Elmer would act on an advisory basis to Kodak engineers until approximately the middle of July.
7. All components could be ordered and delivered prior to October 1, 1961.
8. At some time between October 1 and October 15, 1961, Perkin-Elmer would be in a position to supply assembly technicians to produce a unit for test by December 1, 1961.
9. The unit is compatible with the Kodak breadboard's temperature environment.
10. The Kodak stable platform would provide integration times necessary to obtain 1% or better V/H determination accuracy.
11. The Perkin-Elmer approach is an improved version of the device suggested over a year ago by Kodak and is similar in basic operation to the previously proven unit.

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A summary of the systems investigated is as follows:

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<u>System</u>	<u>Type</u>	<u>Scan Angle</u>	<u>Min Scan Time</u>	<u>Approx. Cost</u>
	Solo	20°		
	Grid	Cont.	4"-10"	
	Correlation	4°	2"-4"	
	Correlation		10"	
	Grid	Cont.	2"-6"	

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Delivery times were all with a seven to nine months promise. Non-jeopardy of in-house or anticipated research and development programs was claimed by all contacted. All units were to be flying engineering models not type tested, mil spec., Air Force procurement units.

It is the opinion of the Eastman Kodak Company that the most expeditious course of action to obtain a V/H sensor applicable to the "O" program is as follows:

1. Immediately authorize an increase of funding to Perkin-Elmer for a sum not to exceed \$48,000 to provide engineering support, material and technician assistance in the fabrication and delivery of one complete grid type V/H sensor, associated electronics and spares for the Eastman Kodak Company. Perkin-Elmer should not need to make any but limited expenditures until subsequent to July 15, 1961.
2. Immediately authorize an increase of funding to the Eastman Kodak Company for a sum not to exceed \$40,000 to provide necessary engineering and technician support to supply one V/H device. The Eastman Kodak Company will not need additional funding for the procurement until after July 1, 1961, however, Kodak does not wish to assume the obligation of supplying a device without firm approval.
3. As an alternate, or preferably in parallel, authorize the Eastman Kodak Company to procure, on a sub-contract basis, from [] one complete V/H sensor and associated electronics. The funding for this procurement could be a \$12,000 engineering study through June 30, 1961 with a commitment for completion of engineering and hardware for the amount of [] in fiscal 1962.

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It is essential that an immediate decision be rendered to make possible procurement within the remaining limited time.

B. L. E.

BLE:LB

Orig. + 2: L. E. W.

cc: C. F. H.

E. L. G.